

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in this application.

LISTING OF CLAIMS

Claims 1-31 (Cancelled)

32. (New) A method for the production of injection moulded plastic parts attached to paperboard, comprising:

closing a moulding tool and applying a first force to the moulding tool to hold the moulding tool closed, with the moulding tool being positioned adjacent a portion of the paperboard to which the plastic part is to be attached;

positioning an injection-moulding nozzle relative to the moulding tool to inject plastic into the closed moulding tool;

applying a second force to the moulding tool which is greater than the first force to hold together the moulding tool during injection moulding;

injection-moulding plastic into the moulding tool with the moulding tool positioned adjacent the paperboard to form the moulded plastic part attached to the paperboard;

releasing the second force applied to the moulding tool; and

moving the moulding tool together with the moulded plastic part attached to the paperboard.

33. (New) The method as claimed in Claim 32, wherein the injection moulding takes place at an injection moulding position, and wherein the plastic part cools as the moulding tool together with the moulded plastic part attached to the paperboard is moved from the injection moulding position toward a cooling position immediately following the injection moulding position.

34. (New) The method as claimed in Claim 33, wherein the plastic part cools at the cooling position.

35. (New) The method as claimed in Claim 32, wherein the injection moulding takes place at an injection moulding position, and wherein the first force is initially applied to the moulding tool as the moulding tool is moved toward the injection moulding position.

36. (New) The method as claimed in Claim 32, wherein the moulding tool is opened after moving the moulding tool together with the moulded plastic part attached to the paperboard.

37. (New) The method as claimed in Claim 32, wherein injection-moulding of the plastic part to form the moulded plastic part attached to the paperboard takes place at an injection-moulding position and at the same time as another previously injection-moulded plastic part is located at a cooling position.

38. (New) The method as claimed in Claim 32, wherein the plastic part forming a top section is injection-moulded on one end of the sleeve to form a packaging container.

39. (New) The method as claimed in Claim 32, wherein the paperboard is a material web, and the plastic part is an opening arrangement and is injection-moulded in an aperture in the material web.

40. (New) The method as claimed in Claim 39, wherein, in positioning an injection-moulding nozzle to injection-mould plastic material into the moulding tool, the material web is positioned in relation to the moulding tool.

41. (New) An apparatus for producing plastic parts attached to paperboard comprising:

an injection-moulding nozzle positioned at an injection moulding position at which injection-moulding of a plastic part to paperboard takes place;

a moulding tool comprised of cooperating mould parts movable between an open condition and a closed condition, with the injection-moulding nozzle injecting plastic into the moulding tool when the moulding tool is in the closed condition at the injection moulding position to produce a plastic part attached to the paperboard;

means for displacement of the moulding tool together with the plastic part attached to the paperboard in relation to the injection-moulding position;

means for applying a first force to the mould parts to hold the mould parts together; and

a unity device which applies to the mould parts, after application of the first force, a second force greater than the first force to hold the mould parts together during the injection moulding.

42. (New) The apparatus as claimed in Claim 41, further comprising a cam mechanism for moving the mould parts towards one another from the open condition to the closed condition.

43. (New) The apparatus as claimed in Claim 41, further comprising a retainer connected to each mould part that supports the moulding part.

44. (New) The apparatus as claimed in Claim 43, further comprising a wheel connected to each retainer and engaged with a cam groove.

45. (New) The apparatus as claimed in Claim 44, wherein the means for applying the first force is a spring acting on each retainer.

46. (New) The apparatus as claimed in Claim 41, wherein the unity device comprises a piston and cylinder assembly which applies the second force.

47. (New) The apparatus as claimed in Claim 41, wherein said means for displacement of the moulding tool comprises a rotary hub and at least one mandrel projecting radially outwardly from the hub, the moulding tool being disposed at an outer end portion of the mandrel.

48. (New) The apparatus as claimed in Claim 47, wherein the moulding tool is inserted in and removed from the unity device by rotation of the mandrel.

49. (New) The apparatus as claimed in Claim 41, further comprising a plurality of moulding units, and wherein said means for displacement of the moulding tool comprises a mandrel wheel comprised of a rotatably driven hub and a plurality of mandrels extending radially outwardly from the hub, each of the moulding units being mounted on one of the mandrels to rotate together with the mandrel.

50. (New) The apparatus as claimed in Claim 41, wherein said means for displacement of the moulding tool comprises a rotatable endless chain on which the moulding tools are mounted, a rotatable endless belt on which the moulding tools are mounted, or a rotatable wheel on which the moulding tools are mounted.

51. (New) The apparatus as claimed in Claim 50, further comprising means for advancing, in a direction of advancement, the paperboard formed as a material web and to which the plastic part is to be attached by the injection-moulding, the rotatable chain, belt or wheel being positioned along one side of the material web.

52. (New) The apparatus as claimed in Claim 51, wherein the rotatable chain, belt or wheel is disposed to displace the moulding tool in the direction of

advancement of the material web at a speed of displacement which is substantially the same as a speed of advancement at which the material web is advanced.

53. (New) The apparatus as claimed in Claim 41, wherein said means for displacement of the moulding tool comprises a rotatable mandrel wheel comprised of a plurality of radially outwardly extending mandrels each adapted to receive the paperboard formed as a sleeve which possesses an end to which the moulded part is to be attached by the injection moulding.

54. (New) An apparatus for producing plastic parts attached to paperboard comprising:

an injection-moulding nozzle positioned at an injection moulding position at which injection-moulding of a plastic part to paperboard takes place;

a plurality of spaced apart moulding tools each comprised of cooperating mould parts movable between an open condition and a closed condition, with the injection-moulding nozzle injecting plastic into the moulding tools in a successive manner when the moulding tools are in the closed condition at the injection moulding position to produce a plurality of respective plastic parts attached to the paperboard;

means for moving the moulding tools towards the injection moulding position and for moving the moulding tools, together with the respective plastic parts attached to the paperboard, away from the injection-moulding position after the injection moulding;

means for initially applying a first force to the mould parts of each mould tool as the mould tool is moved towards the injection moulding position to hold the mould parts together; and

a unity device which applies a second force greater than the first force to the mould parts of each mould tool at the injection moulding position to hold the mould parts together during the injection moulding.

55. (New) The apparatus as claimed in Claim 54, wherein said means for moving the moulding tools comprises a rotatable mandrel wheel comprised of a plurality of radially outwardly extending mandrels each adapted to receive a respective sleeve formed from the paperboard, each of the moulding tools being mounted to an end of one of the mandrels to rotate together with the mandrel.

56. (New) The apparatus as claimed in Claim 55, wherein the moulding tools are successively inserted in and removed from the unity device by rotation of the rotatable mandrel wheel.

57. (New) The apparatus as claimed in Claim 54, wherein said means for moving the moulding tools comprises a rotatable endless chain on which the moulding tools are mounted, a rotatable endless belt on which the moulding tools are mounted, or a rotatable wheel on which the moulding tools are mounted.

58. (New) The apparatus as claimed in Claim 54, wherein each moulding part of each moulding tool is connected to a retainer which supports the moulding

part, the retainer being connected to an element which engages a cam surface during movement of the moulding parts toward the injection moulding position to move the cooperating moulding parts to the closed condition.

59. (New) The apparatus as claimed in Claim 58, wherein the means for initially applying the first force to the mould parts of each mould tool comprises a spring acting on each retainer that is connected to each moulding part of each moulding tool.